SUPPLEMENTARY FILE

Advantages and limitations of large language models for antibiotic prescribing and antimicrobial stewardship

Daniele Roberto Giacobbe[1,2]*, MD, PhD; Cristina Marelli[2], BS; Bianca La Manna[3], BS; Donatella Padua[4], PhD; Alberto Malva[5], MD; Sabrina Guastavino[6], PhD; Alessio Signori[7], PhD; Sara Mora[8], PhD; Nicola Rosso[8], PhD; Cristina Campi[6,9], PhD; Michele Piana[6,9], PhD; Ylenia Murgia[3], BS; Mauro Giacomini[3], PhD; Matteo Bassetti[1,2], MD, PhD

[1] Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy

[2] UO Clinica Malattie Infettive, IRCCS Ospedale Policlinico San Martino, Genoa, Italy

[3] Department of Informatics, Bioengineering, Robotics and System Engineering (DIBRIS), University of Genoa, Genoa, Italy

[4] Departmental Faculty of Medicine, UniCamillus - International University of Health and Medical Science, Rome, Italy

[5] Italian Interdisciplinary Society for Primary Care, Bari, Italy

[6] Department of Mathematics (DIMA), University of Genoa, Genoa, Italy

[7] Section of Biostatistics, Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy

[8] UO Information and Communication Technologies, IRCCS Ospedale Policlinico San Martino, Genoa, Italy

[9] Life Science Computational Laboratory (LISCOMP), IRCCS Ospedale Policlinico San Martino, Genoa, Italy

INDEX

Supplementary Table 1. Some examples of generative artificial intelligence tools developed with the aim of supporting evidence-based medical decisions

Tool	Website	Description	Access
Glass AI	https://glass.health/	Medical Q&A	Free limited account with premium option
MediSearch	https://medisearch.io/	Analyzed healthcare Q&A with NLP.	Free limited account with premium option
Medical Chat	https://medical.chat-data.com/	Medical Q&A	Free limited account with premium option
MedQuestio	https://medquestio.it	Medical Q&A	Free
Glass AI	https://glass.health/	Medical Q&A	Free limited account with premium option
Kahun	https://www.kahun.com	Clinical Decision Support	Premium

Supplementary Table 2. A proposal of course design on critical thinking to build trust in large language models (LLMs) to support antibiotic prescribing and antimicrobial stewardship

Teaching Modules	Learning Objectives	Trust Beliefs coverage			
		Competence	*Benevolence*	*Integrity*	*Transparency*
Introduction to Artificial Intelligence in Healthcare	Provide an overview of AI technologies, including LLMs, and their applications in healthcare	X			
Ensuring Accuracy and Reliability of LLMs in Clinical Practice	Train physicians to evaluate and ensure the accuracy and reliability of AI-generated recommendations	X	X	X	X
Addressing Bias in AI and LLMs	Educate physicians on the potential biases in data and algorithms and how to mitigate them	X	X	X	X
Interpretability and Transparency of AI Models	Equip physicians with skills to understand and interpret AI model outputs and ensure transparency in AI-assisted decision-making	X		X	X
Patient Privacy and Data Security in AI Integration	Ensure physicians understand the importance of safeguarding patient privacy and data security in the use of AI technologies		X	X	X
Ethical and Legal Considerations in AI-Driven Healthcare	Provide comprehensive knowledge on the ethical and legal aspects of integrating AI in healthcare		X	X	X